PROPOSED PIPELINE

SPRING GROVE GREEN POWER

Air Quality Assessment

Prepared for: Acorn Bioenergy Ltd

Client Ref: Spring Grove Green Power

SLR Ref: 404.11923.00004 Phase 5
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EXECUTIVE SUMMARY

SLR Consulting Limited (SLR) has been instructed by Acorn Bioenergy Ltd ('Acorn') to undertake an Air Quality Assessment (AQA) in support of their planning application for planning application for the installation of a roughly 3km digestate pipeline ('Proposed Development').

Acorn is seeking to install a digestate pipeline to its Spring Grove AD facility. The pipeline will connect the AD facility with the remote lagoons to the north.

Following the submission of a Planning Application for an agricultural anaerobic digestion facility (AD Facility) on facility on land north of the A1307, approximately 3km east of Haverhill town centre, referred to as Spring Grove Green Power, this planning application seeks planning permission for the digestate pipeline facilities associated with the proposed AD facility.

A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken following IAQM guidance.

Following the construction dust assessment, the Site is found to be at worst 'Low Risk' in relation to dust soiling effects on people and property, and 'Low Risk' human health impacts. of this report, residual impacts from dust emissions during the construction phase would be 'not significant'.

Given the short-term nature of the construction phase and the comparatively low volume of vehicle movements that will likely arise there is predicted to be a neutral / insignificant effect on air quality from construction-generated vehicle emissions.

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1.0 INTRODUCTION

SLR Consulting Limited (SLR) has been instructed by Acorn Bioenergy Ltd ('the client') to undertake an Air Quality Assessment (AQA) in support of their planning application for planning application for the installation of a 3 km digestate pipeline ('Proposed Development') between a proposed Anaerobic Digestion (AD) facility on land facility on land north of the A1307, approximately 3km east of Haverhill town centre, referred to as Spring Grove Green Power and neighbouring farm.

The assessment describes the scope, relevant legislation, assessment methodology and the baseline conditions currently existing in the area. It then presents the potential impacts of the Proposed Development and an evaluation of the significance of effects.

1.1 Proposed Development

The Application seeks to import and treat 92,000 tonnes of feedstock per annum in order to generate biogas subsequently producing biomethane which is then removed by tanker to a central facility for injection into the national grid.

In addition to the biomethane, the AD process also produces a nutrient rich solid fertiliser, soil conditioner as well as a liquid fertiliser (digestate), which is used on local farms in place of raw manures and artificial fertilisers.

It should be noted that operations on the main AD facility do not fall within the scope of this assessment, and have been assessed within a separate AQA[1].

The digestate pipeline facilities will enable farm waste to efficiently be transported to the AD facility, to allow liquid digestate to be transported back to the farm, to then be used as fertiliser. There will therefore be two pipelines required, which will be located adjacent to each-other.

This proposal seeks to construct and operate a digestate pipeline, which would enable direct connection between the AD facility and remote lagoons to the north.

1.2 Scope and Objective

It is understood that an air quality assessment is required to assess potential air quality effects associated with the construction of the Proposed Development, more specifically the associated impacts along the proposed Construction Corridor Route (referred to as the 'Route' hereafter).

The scope of this assessment is as follows:

- Baseline Evaluation – Assessment of existing air quality in the local area.
- Construction Phase Assessment – Identification and assessment of potential air quality effects associated with the construction phase of the Proposed Development.
- Mitigation Measures – as required.

[1] SLR report: "404.11923.00004_Acorn AD_Spring Grove AQA"

2.0 RELEVANT LEGISLATION, POLICY & GUIDANCE

2.1 Legislative Context

2.1.1 Air Quality Strategy

The Government's policy on air quality within the UK is set out in the Air Quality Strategy for England, Scotland, Wales, and Northern Ireland (AQS) most recently updated in July 2007. The AQS sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in the UK.

The AQS sets standards and objectives for ten priority pollutants. Standards are the concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. Objectives are policy targets often expressed as maximum concentrations not to be exceeded either without exception or with a limited number of exceedances within a specified timescale.

The strategy objectives for the pollutants considered in this report are shown in Table 2-1.

2.1.2 Air Quality Regulations

The Air Quality Standards (AQS) Regulations 2010 (the regulations) transpose the Ambient Air Quality Directive (2008/50/EC) and transpose the Fourth Daughter Directive (2004/107/EC) within UK legislation.

The Regulations include Limit Values, Target Values, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment (collectively termed Air Quality Assessment Levels (AQAL) throughout this report). Those relevant to this Air Quality Assessment are presented within Table 2-1.

2.1.3 Local Air Quality Management (LAQM)

Section 82 of the Environment Act 1995 (Part IV) requires local authorities to periodically review and assess the quality of air within their administrative area. The reviews have to consider the present and future air quality and whether any AQALs prescribed in regulations are being achieved or are likely to be achieved in the future.

Where any of the prescribed AQALs are not likely to be achieved the authority concerned must designate an Air Quality Management Area (AQMA). For each AQMA the local authority has a duty to draw up an Air Quality Action Plan (AQAP) setting out the measures the authority intends to introduce to deliver improvements in local air quality in pursuit of the AQAL. As such, Local Authorities (LAs), have formal powers to control air quality through a combination of LAQM and by use of their wider planning policies.

Defra has published technical guidance for use by local authorities in their LAQM work[2]. This guidance, referred to in this report as LAQM.TG(16), has been used where appropriate in the assessment presented here.

2.1.4 General Nuisance Legislation

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10µm (i.e. greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

[2] Department for Environment, Food and Rural Affairs (DEFRA): Local Air Quality Management Review and Assessment Technical Guidance LAQM.TG(16), April 2021.

2.1.5 Protection of Ecological Receptors

Sites of nature conservation importance at a European, national and local level, are provided environmental protection from developments, including from atmospheric emissions via the following legislation:

- Conservation of Habitats and Species Regulations 2017 ('Habitats Regulations') as amended
- Wildlife & Countryside Act 1981.

2.1.6 Environmental Permitting Regulations

The AD Facility is a type of operation that would be regulated under the Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No.1154 as amended). The EP Regulations include requirements on operating conditions, monitoring and Emission Limit Values (ELVs) that would be incorporated into the sites Permit and would be enforceable by the Environment Agency (EA).

Various guidance documents are provided by the EA with respect the operation and assessment of impacts from facilities regulated under EP Regulation. Key to air quality assessments is the 'Air Emissions Risk Assessment for your Environmental Permit' (AERA) guidance. The AERA guidance provides Environmental Assessment Levels (EALs) for pollutants not covered under the AQS or AQSR, such as ammonia and guidance on assessing impacts on ecological. Other guidance documents address assessment of risks from bioaerosols.

2.2 Environmental Standards

2.2.1 Standards for the Protection of Human Health

The standards applied in this assessment are shown in Table 2-1.

Table 2-1
Applied Air Quality Assessment Levels

Pollutant	Standard ($\mu g/m^3$)	Measured As	
Nitrogen Dioxide (NO_2)	40	Annual Mean	-
	200	1-hour Mean	not to be exceeded more than 18 times per year
Particles (PM_{10})	40	Annual Mean	-
	50	24-hour mean	not to be exceeded more than 24 times a calendar year
Particles ($PM_{2.5}$)	25	Annual Mean	-

In accordance with the Department for Environment, Food and Rural Affairs' (DEFRA) technical guidance on Local Air Quality Management (LAQM.TG(22)), the AQALs should be assessed at locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective. A summary of relevant exposure for the objectives presented in Table 2-1 are shown below in Table 2-2.

Table 2-2
Human Health Relevant Exposure

AQAL Averaging Period	Relevant Locations	AQALs should apply at	AQALs should not apply at
Annual Mean	Where individuals are exposed for a cumulative period of 6-months in a year	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	Where individuals may be exposed for eight hours or more in a day	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	Where individuals might reasonably be expected to spend one hour or longer	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

2.3 Planning Policy

2.3.1 National Policy

The 2021 update to the National Planning Policy Framework (NPPF) describes the policy context in relation to pollutants including air pollutants:

> "*Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of […] air […] pollution […]. Development should, wherever possible, help to improve local environmental conditions such as air […] quality […]*"
>
> "*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.*"

Specifically, in terms of development with regards to air quality:

> "*Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.*"

The NPPF is accompanied by supporting Planning Practice Guidance[3] (PPG) which includes guiding principles on how planning can take account of the impacts of new development on air quality. The November 2019 update to the PPG includes the following in regard to air quality:

> *"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species)."*

The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that "*Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions) […] Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact*".

The policies within the NPPF and accompanying PPG in relation to air pollution are considered within this assessment.

2.3.2 Local Policy

The Site lies within the administrative area of WSC, which was established on the 1st April 2019. WSC is made up of the former administrative areas of Forest Heath District Council (FHDC) and St Edmundsbury Borough Council (SEBC), therefore the local plan for WSE is formed from a joint development plan which conforms with the core strategies for both FHDC[4] and SEBC[5]. The Joint Development Management Policies Document (JDMPD)[6] was developed in February 2015. The JDMPD presents the strategy for the development and use of land in the district, as well as containing the policies for delivering these objectives. It is also noted that at the time of writing, the West Suffolk Local Plan is under review, consultation to be concluded by 26th July, to establish the long term planning and land use policies for the area.

The following policy of the JDMPD was identified to be of direct relevance to this assessment:

Policy DM14: Protecting and Enhancing Natural Resources, Minimising Pollution and Safeguarding from Hazards:

"Development will not be permitted where, individually or cumulatively, there are likely to be unacceptable impacts arising from the development on:

- *the natural environment, general amenity and the tranquillity of the wider rural area;*
- *health and safety of the public;*
- *air quality; or*
- *[…]*
- *compliance with statutory environmental quality standards."*

Consideration has been given to the above policy within this assessment.

2.4 Assessment Guidance

The air quality assessment has been carried out with reference to the principles contained within the following guidance documents:

[3] Planning Practice Guidance Air Quality (2014) (June 2021 Update) Ministry of Housing, Communities and Local Government. https://www.gov.uk/government/collections/planning-practice-guidance
[4] Forest Heath Local Development Framework, Adopted May 2010.
[5] Local Development Framework, St Edmundsbury Core Strategy, Adopted December 2010.
[6] Forest Heath and St Edmundsbury Local Plan, Joint Development Management Policies Document, Adopted February 2015

- The Department for Environment, Food and Rural Affairs (DEFRA): Local Air Quality Management Technical Guidance (LAQM.TG(22));
- DEFRA: COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021[7];
- IAQM: Use of 2020 and 2021 Monitoring Datasets[8];
- Environmental Protection UK (EPUK) and the Institute of Air Quality Management Guidance (IAQM): Land-Use Planning and Development Control: Planning for Air Quality[9];
- IAQM: Guidance on the Assessment of Dust from Demolition and Construction[10]; and
- Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites[11]

[7] DEFRA and the Greater London Authority, COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021. April 2021.

[8] Use of 2020 and 2021 monitoring datasets, August 2021, Version 1.0. Institute of Air Quality Management. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/IAQM_2020_and_2021_monitoring_datasets.pdf.

[9] EPUK and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, 2017.

[10] IAQM, Guidance on the Assessment of Dust from Demolition and Construction, 2022.

[11] Institute of Air Quality Management (IAQM), A guide to the assessment of air quality impacts on designated nature conservation sites (2020)

3.0 ASSESSMENT METHODOLOGY

3.1 Construction Dust – Dust Risk Assessment

A construction dust assessment has been undertaken with reference to IAQM guidance. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation:

- demolition;
- earthworks;
- construction; and
- track-out.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- annoyance due to dust soiling;
- the risk of health effects due to an increase in exposure to PM10; and
- harm to ecological receptors.

The first stage of the assessment involves a screening to determine if there are sensitive receptors within threshold distances of the site activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- human receptor is located within 350m of the Site, and/or within 50m of routes used by construction vehicles, up to 200m from the site entrance(s); and/or
- ecological receptor is located within 50m of the Site, and/or within 50m of routes used by construction vehicles, up to 200m from the site entrance(s).

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds and professional judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the appropriate mitigation requirements, whereby through effective application, residual effects are considered to be 'not significant'.

3.2 Construction Phase – Road Traffic Assessment

The assessment of air quality effects in relation to traffic generated during the construction and operational phase of the Proposed Development has been screened in accordance with EPUK-IAQM and DMRB guidance. This comprises a two-staged screening process to identify where further assessment is required. If the Proposed Development does not meet exceed the screening criteria, then effects are considered insignificant.

The applied screening procedure is as follows:

- Stage 1: Comparison of road traffic trips generated by the Proposed Development with reference to EPUK-IAQM thresholds to determine the extent of the affected road network:
    - within or adjacent to an AQMA:
        - a change of Light-Duty Vehicle (LDV) flows of more than 100 Annual Average Daily Traffic (AADT); and/or
        - a change of Heavy-Duty Vehicle (HDV) flows of more than 25 AADT.
    - outside of an AQMA:
        - a change of LDV flows of more than 500 AADT; and/or

- a change of HDV flows of more than 100 AADT.

- Stage 2: Spatial review with use of satellite imagery to determine whether exposure exists within 200m of an affected road (as per the DMRB LA 105).

3.1 Operational Phase

Once constructed, the operation of the below ground pipeline and associated above ground substation, will not generate any direct air quality emissions and not have any associated traffic trip generation. Possible maintenance works required over their life span are not considered significant enough in scale to warrant further investigation, with any resulting impacts on air quality likely being far less than the construction phase impacts presented in this assessment.

It should be noted that the Proposed Development forms part of proposed Aerobic Development (AD) facility. The Proposed Development will, therefore, offer in-direct benefits through reducing potential vehicular trip generation for material feedstock to the process. Assessment of these indirect benefits are however outside of the scope of this air quality assessment and have not been considered further.

On the basis of the above, operational phase emissions have been considered as 'not significant' and have therefore been scoped out of requirement for assessment.

4.0 BASELINE ENVIRONMENT

4.1 Site Setting and Sensitive Receptors

The Route Corridor is approximately 3km in length. At one end is the land to the north of the A1307, approximately 3km east of Haverhill town centre at approximate National Grid Reference (NGR): x564200 y246900 at the location, connecting to the north to land next to Cadge's Wood.

The entire route is located within the administrative area of WSC and is not located within, or in proximity of, an AQMA.

Figure 4-1 below presents the Route Corridor, nearest sensitive human receptors and surrounding ecological receptors.

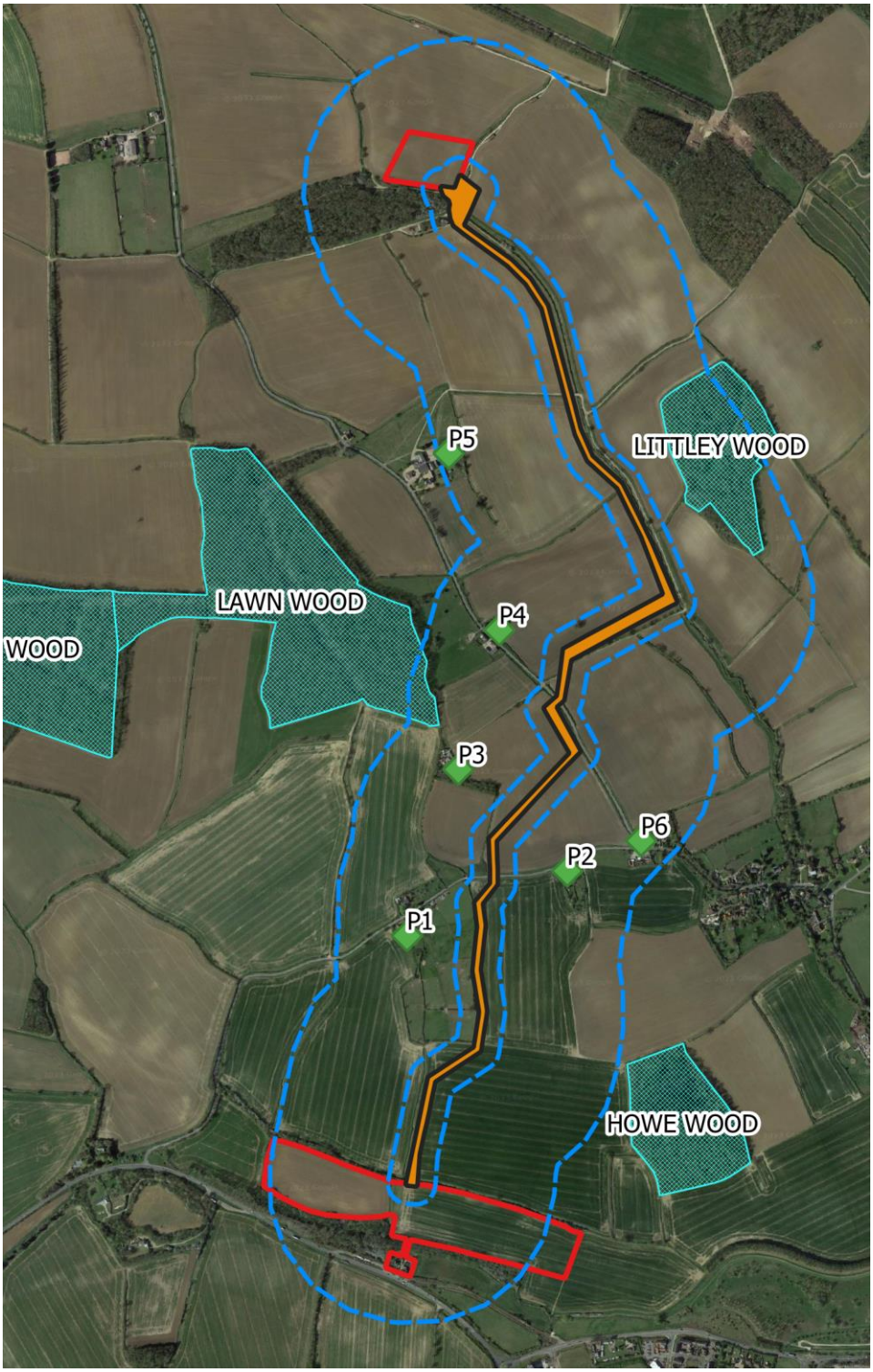

Figure 4-1
Site Setting & Sensitive Receptors

4.1.1 Human Receptors

The most sensitive human receptors would be residential properties and amenity areas, with commercial or industrial receptors typically having a lower sensitivity due to the reduced frequency of occupation and amenity expectations. There are human receptors within 350m of the Route, as presented in Figure 4-1.

4.1.2 Ecological Receptors

The AERA Guidance requires that ecological habitats should be screened against relevant standards if they are located within the following set distances from the facility:

- Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or Ramsar sites within 10km of the installation; and
- Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNR), Local Nature Reserves (LNR), Local Wildlife Sites (LWS) and Ancient Woodland (AW) within 2km of the installation.

Further the IAQM guidance concludes that ecological designation within 50m of the construction site boundary require a risk assessment. A review using the Magic web-based mapping service[12] was undertaken to identify any designated sites of ecological or nature conservation importance required for consideration within the assessment.

Ancient woodlands (Howe Wood, Littley Wood and Over and Lawn Wood) are located at a distance of 300m from the Route Corridor. The closest designated habitat site is 'Littley Wood'. This site is located greater than 100m from the boundary of the Route Corridor Thus, there are no designated habitat sites within 50m of the Route. Therefore, an assessment of construction dust on ecological receptors is not required.

4.2 Ambient Air Quality

4.2.1 Local Air Quality Management

A review of WSC's most recent Annual Status Report (ASR)[13] and air quality monitoring dataset indicates that air quality, with regard to NO_2 concentrations, falls below the relevant AQALs within Haverhill.

WSC have declared three AQMAs for exceedences of the annual mean NO_2 objective; the Newmarket AQMA, Great Barton AQMA and Sicklesmere Road, Bury St Edmunds AQMA were declared in 2017, 2017 and 2018 respectively. These AQMAs are located at a distance of 15km or more from the Proposed Development, therefore these AQMAs have not been considered further within this study.

4.2.2 Automatic Air Quality Monitoring

WSC operates a number of automatic monitoring stations, however all of these monitoring stations are located within an AQMA and are therefore not considered representative of the Site locale.

The closest Automatic Urban and Rural Network (AURN) monitoring locations are the Cambridge and Wicken Fen monitors, located approximately 22km northwest and 24km north of the Site respectively. The Cambridge monitor is set within an 'Urban Traffic' monitoring location, and is therefore not considered representative of the Site locale and has not been considered further.

[12]Natural England, www.magic.gov.uk, accessed June 2022.
[13] 2021 Annual Status Report (ASR), Winchester City Council, June 2021.

4.2.3 Defra Modelled Background Concentrations and Projections

The total concentration of a pollutant is comprised of explicit local emission sources (such as roads and industrial sources) and the background component. The background component consists of indeterminate sources which are transported into an area from further away by meteorological conditions. Background pollutant concentrations are therefore the ambient level of pollution that is not affected by local pollutant sources.

Predictions of background pollutant concentrations on a 1km-by-1km grid basis have been produced by DEFRA for the entirety of the UK to assist LAs in their Review and Assessment of air quality[14]. Mapped background concentrations of NO_2, PM_{10} and $PM_{2.5}$, based upon the 2018 base year Defra update and projected to 2022, were downloaded for the grid squares containing the Site and relevant receptors, as presented within Table 4-1.

Table 4-1
Background Concentrations for Study Area

Pollutant	2022 Mapped Background Concentration (µg/m^3)	
	Min	Max
NO_2	6.2	7.9
PM_{10}	15.8	16.4
$PM_{2.5}$	9.3	9.3

The Defra background predictions indicate annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the relevant AQALs across the study area.

[14] Background mapping data for local authorities – http://uk-air.defra.gov.uk/data/laqm-background-home, accessed June 2022.

5.0 CONSTRUCTION PHASE ASSESSMENT

5.1 Construction Description

This section presents the potential air quality impacts and effects associated with the construction of the Proposed Development.

The Proposed Development will involve the installation of a twin 9" pipes along the entire Route. The Pipeline Route will operate along an 8m wide corridor. The pipeline will be installed in sections along the entire route via an open trench approximately 3m by 3m.

There will also be a single laydown located within the farms at the end of the route. The entire Route is estimated to be constructed within 9-12 months.

The trench will be cut using the following method:

- Open excavation of trenches along cable route using a single 360 Excavator;
- Trench widths to be approximately 3m;
- Removal of subsurface using mechanical means;
- Installation of infrastructure and backfilling (reusing extracted materials where possible); and
- Restoration of surface to correct specification.

There will also involve some horizontal directional drilling at portions along the route.

Although it is anticipated that the pipelay will be carried out as a continuous process it has been assumed for the purpose of assessment that any stretch of excavated trench will be approximately 6m in length and any one time. The duration of works along the trench will vary depending on local restrictions but it is expected that around 30m of excavation, duct laying, and backfilling will take place per week.

As the works involved will be similar in scale and duration along most parts of the Route; the risk assessment has been developed as a generic risk assessment which can be applied to the entire Route or indeed any part of the intrusive works along the Route.

As a precautionary approach a worst-case assessment has been undertaken, assuming works are carried out adjacent to the closest sensitive receptors. However, it is noted that at some sections the risk of impacts may be lower than presented.

5.1.1 Potential Dust Emissions Magnitude

Demolition

There will be no demolition of above ground structures along the Route, as such it is considered that there are no Demolition works as defined in the IAQM guidance.

Earthworks

Earthworks along the route will involve the removal, temporary storage and backfilling of unmade ground. As previously mentioned each "open" section is estimated to be approximately 6m long at any one time with an open trench of 3m x 3m. Each open section will therefore be less way below the lowest assessment magnitude criteria of '<2,500m^{2}'. The dust emission magnitude for earthworks is therefore considered to be 'small'.

Construction

All intrusive works will be reinstated to the original layout and no above ground structures will be in place along the Route, as such it is considered that there are no Construction works as defined in the IAQM guidance.

Trackout

Construction vehicles are expected to deliver materials to at various points along the Route as it progresses. However, they will be utilise the principal route and will minimise the impact on the existing highway network.

Given the scale and nature of the works required, it is considered unlikely that >50 HDV outward movements will occur in any worst-case day. The HDVs will not travel across unmade ground and thus the ability for HGV's to "track out" dust will be minimal. The dust emission magnitude for trackout is therefore initially considered to be 'small'.

Summary

A summary of the potential dust emission magnitude for each of the activities is displayed in Table 5-1.

Table 5-1
Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Earthworks	Small
Trackout	Small

Sensitivity of the Area

Dust Soiling Impacts

Overall, there are anticipated to be <10 existing residential properties (highly sensitive receptors) within 350m of the Route Corridor. However, there are no receptors within 50m of the Route.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to earthworks and trackout activities is therefore considered to be 'low' along the entire Route.

Human Health Impacts

The maximum background PM_{10} concentration in the site locale is predicted to be 16.4µg/m³, based upon 2022 mapped background estimates (i.e. falls into the <24µg/m^3 class).

Given the above information regarding the number of residential receptors in proximity of the Proposed Development, the sensitivity of the area with respect to human health impacts in relation to demolition, earthworks and construction is therefore considered to be 'low'.

Summary

A summary of the sensitivity of the area for each potential impact and activity is presented in Table 5-2.

Table 5-2
Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling Impacts	n/a	Low	n/a	Low
Human Health Impacts	n/a	Low	n/a	Low

Risk of Impacts

The outcome of the assessment of the potential 'magnitude of dust emissions', and the 'sensitivity of the area' are combined in Table 5-3 below to determine the risk of impact which is used to inform the selection of appropriate mitigation.

Table 5-3
Risk of Dust Impacts (without mitigation)

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling Impacts	n/a	Low Risk	n/a	Low Risk
Human Health Impacts	n/a	Low Risk	n/a	Low Risk

Following the construction dust assessment, the Proposed Development is predicted to comprise at worst a 'low' risk in relation to dust soiling and human health effects at nearby sensitive receptors. Furthermore, any potential dust effects during the construction phase would be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

Mitigation Measures

Following the dust risk assessment, the Site is found to be at worst 'Low Risk' in relation to dust soiling effects on people and property and in relation to human health impacts. However, potential dust effects during the construction phase are considered to be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

Nonetheless, commensurate with the above designation of dust risk, mitigation measures as identified by IAQM guidance are required to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed. In accordance with IAQM guidance, providing effective mitigation measures are implemented, construction dust effects are considered to be 'not significant'. The specific mitigation measures proposed are presented in Section 8.0.

5.2 Construction Traffic Screening

5.2.1 Trip Generation

The construction phase of the Proposed Development would result in a temporary increase in road traffic arriving at and leaving the Site, and as such a screening assessment of the associated trip generation is required.

Construction of the Proposed Development would result in the temporary employment of contractors at the Site. The associated increase in LDVs (from contractors commuting to work) has been considered through adoption of a suitably conservative assessment approach; assuming that all contractors travel to the Site via car (without carpooling) every day.

In consideration of the size and nature of the construction operations, the anticipated number of LDVs arriving at and leaving the Site each day is anticipated to be fewer than 250.

The construction of the Proposed Development would result in import and exports of goods and materials to/from the Site via road. In consideration of the size and nature of the construction operations, the anticipated number of HDVs arriving at and leaving the Site each day is anticipated to be fewer than 50.

As such, it is anticipated that the import and export operations and commuting of contractors to the Site would result in less than 100 HDV and 500 LDV movements, as AADT.

5.2.2 Screening Assessment – Consideration of Potential Impacts

The Proposed Development is not located within or in proximity to any AQMAs, therefore the appropriate screening criteria have been applied.

Based upon the anticipated trip generation details outlined above, the predicted number of additional journeys (less than 100 HDVs and 500 LDVs as AADT) are below the relevant criteria for a site situated outside an AQMA.

Therefore, in accordance with the EPUK & IAQM Guidance, the *'impacts* [on air quality from construction phase trips] *can be considered as having an insignificant effect*'.

6.0 OPERATIONAL PHASE ASSESSMENT

The operational phase has not been considered to have significant air quality impacts.

7.0 MITIGATION MEASURES

The screening assessment presented within Section 5.0 and Section 6.0 construction impacts associated to the Proposed Development would result in the generation of dust and PM_{10}.

IAQM guidance outlines a number of site-specific mitigation measures based on the assessed site risk, as displayed in Table 7-1. The measures are grouped into those which are highly recommended and those which are desirable.

Table 7-1
Construction Dust Mitigation Measures

Site Application	Mitigation Measures
Highly Recommended	
Communications	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
Monitoring	Carry out regular site inspections and make an inspection log available to the local authority when asked.
Operating Vehicle/Machinery and Sustainable Travel	Ensure all vehicles switch off engines when stationary - no idling vehicles.
	Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
Operations	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the

Site Application	Mitigation Measures
	local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary.
Operating Vehicle/Machinery and Sustainable Travel	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
Operations	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site	Keep site fencing, clean using wet methods.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Record all inspections of haul routes and any subsequent action in a site logbook.

8.0 CONCLUSIONS

This Air Quality Assessment (AQA) has been undertaken in support of the planning application for the installation of a roughly 3 km digestate pipeline ('Proposed Development').

Acorn is seeking to install a digestate pipeline to its Spring Grove AD facility. The pipeline will connect the AD facility with the remote lagoons to the north.

Following the submission of a Planning Application for an agricultural anaerobic digestion facility (AD Facility) on facility on land north of the A1307, approximately 3km east of Haverhill town centre, referred to as Spring Grove Green Power, this planning application seeks planning permission for the digestate pipeline facilities associated with the proposed AD facility.

A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken following IAQM guidance.

Following the construction dust assessment, the Site is found to be at worst 'Low Risk' in relation to dust soiling effects on people and property, and 'Low Risk' human health impacts. of this report, residual impacts from dust emissions during the construction phase would be 'not significant'.

Given the short-term nature of the construction phase and the comparatively low volume of vehicle movements that will likely arise there is predicted to be a neutral / insignificant effect on air quality from construction-generated vehicle emissions.

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